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NON-INVASIVE ALTERNATIVE TO THE 1500 LBS DECK TO HOUSE CONNECTION
ELIMINATES GOING INSIDE THE HOME FOR CONNECTION*

PATENT PENDING

* W/ DIMENSIONAL LUMBER AND HOUSE FLOOR
JOISTS PARALLEL TO DECK JOISTS

LAG SCREW WITHDRAW FROM END JOIST

ENGINEERING ANALYSIS

2009 IRC R301.1.1, R301.1.3, R502.2.2.3
2012 IRC R301.1.1, R301.1.3, R507.2.3

F = TOTAL LOAD, LBS
W = WITHDRAWAL LOAD ON EACH LAG, = F/2, LBS
G = SPECIFIC GRAVITY OF WOOD
D = LAG SCREW SHANK DIAMETER, IN
Ceg = END GRAIN WITHDRAWAL FACTOR
Cd = LOAD DURATION FACTOR
Cm = WET SERVICE FACTOR
Ct = TEMPERATURE FACTOR
Ctn = TOE NAIL FACTOR
L = LENGTH OF THREADS INTO END GRAIN, IN (EXCLUDING TIP)

F = 1500 LBS
W = $1800 \cdot (G^{1.5}) \cdot (D^{0.75}) \cdot Cd \cdot Cm \cdot Ct \cdot Ceg \cdot Ctn \cdot L$, LBS
G = 0.42
D = 0.375, IN
Ceg = 0.75
Cd = 1.6
Cm = 1.0
Ct = 1.0
Ctn = 1.0

ENGINEERING CALCULATIONS

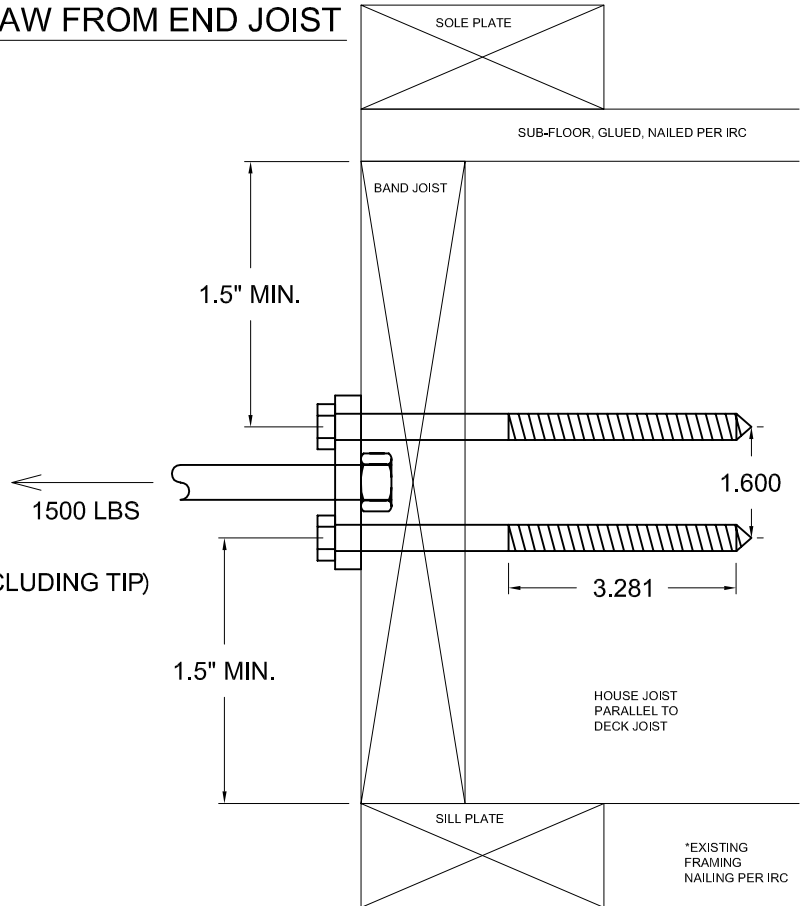
W = $1800 \cdot (0.42^{1.5}) \cdot (0.375^{0.75}) \cdot 1.6 \cdot 1.0 \cdot 1.0 \cdot 0.75 \cdot 1.0 \cdot 3.28$
W = 930 LBS
Fw = $2 \cdot 930 = 1860 \text{ LBS} > 1500 \text{ LBS}$

GEOMETRY

EDGE DISTANCE = $1.5 \cdot D = 1.5 \cdot 0.375 = 0.5625 \text{ IN} < 0.75 \text{ IN}$
END DISTANCE = $4 \cdot D = 4 \cdot 0.375 = 1.5, \text{ IN}$
SPACING = $4 \cdot D = 4 \cdot 0.375 = 1.5, \text{ IN} < 1.6 \text{ IN}$

DRILLING

CLEANACE HOLE - 3/8" DIA. DEPTH OF SHANK, 1.5" DEEP
LEAD HOLE - 1/4" DIA. DEPTH OF THREADS, 6" DEEP



DESIGN REFERENCE

*2012 NDS, 11.2-1, TABLE 10.3.1, TABLE 11.2A,
TABLE L2, TABLE 11.3.3A, PART 11.2.1.3

*2012 NDS, TABLE 11.5.1E

*2012 NDS, PART 11.1.4.2 (a)

*2012 NDS, PART 11.1.4.2 (b)